

ABSTRACT OF THE DISCLOSURE

A method for forming bottle-shaped trenches. First, a substrate is provided. Next, a hard mask with openings is formed on the substrate. The substrate is etched through the openings to form trenches with an upper portion and a lower portion. An isolated layer is formed conformally on the hard mask and in the trenches. A shield layer is formed in the lower portion of the trenches. A part of the insulating layer, which is not covered by the shield layer, is then removed. A protective layer is formed on the upper portion of the trenches. The shield layer and the isolated layer are removed. Finally, the substrate of the lower part of the trenches is wet etched using the protective layer as a mask so as to form bottle-shaped trenches.